

CLAIMS

What is claimed is:

1. An organic electroluminescent (EL) display device comprising:

an anode;

a hole transport layer formed on the anode;

a light-emitting layer formed on the hole transport layer;

a cathode formed on the light-emitting layer; and

an electron injection layer including a metal oxide represented by formula 1 formed

between the light-emitting layer and the cathode,

wherein:

formula 1 is $MA_xMB_yO_z$,

MA is an alkali metal or alkali earth metal,

MB is a group IV or V metal,

x is a number between 1 and 2 inclusive,

y is a number between 1 and 2, and

z is a number between 2 and 3 inclusive.

2. The organic EL display device of claim 1, wherein the metal oxide represented by formula 1 is $LiNbO_3$, $LiTaO_3$, $BaTiO_3$ or $KNbO_3$.

3. The organic EL display device of claim 1, wherein the electron injection layer has a thickness from 5 to 20 Å inclusive.

4. The organic EL display device of claim 1, further comprising a hole injection layer between the anode and the hole transport layer.

5. The organic EL display device of claim 1, further comprising an electron transport layer between the light-emitting layer and the electron injection layer.

6. The organic EL display device of claim 1, wherein the MA of the metal oxide represented in formula 1 is from the group consisting of Li, Na, K, Rb, Cs, Mg, Ca, Ba, and Sr.

7. The organic EL display device of claim 1, wherein the MB of the metal oxide represented in formula 1 is from the group consisting of Ti, Zr, Hf, V, Nb, and Ta.

8. The organic EL display device of claim 1, wherein the metal oxide represented by formula 1 is LiNbO_3 .

9. The organic EL display device of claim 1, wherein the metal oxide represented by formula 1 is LiTaO_3 .

10. The organic EL display device of claim 1, wherein the metal oxide represented by formula 1 is BaTiO_3 .

11. The organic EL display device of claim 1, wherein the metal oxide represented by formula 1 is KNbO_3 .

12. The organic EL display device of claim 1, wherein the hole transport layer further comprises a dopant capable of emitting light at electron-hole bonds so as to allow emission colors to be adjusted according to the kind and content of the dopant.

13. The organic EL display device of claim 12, wherein the dopant is selected from the group consisting of
4-(dicyanomethylene)-2-t-butyl-6-(1,1,7,7-tetramethyljulolidyl-9-enyl)-4H-pyran, Coumarin 6, Rubrene, DCM, DCJTb, Perylene, and Quinacridone.

14. The organic EL display device of claim 12, wherein the dopant is in an amount of 0.1 to 5% by weight of the hole transport layer.

15. The organic EL display device of claim 5, wherein the electron transport layer has a thickness of 30nm to 100nm.

16. The organic EL display device of claim 5, wherein the electron transport layer includes Alq₃.

17. The organic EL display device of claim 5, wherein the electron transport layer further includes a dopant capable of emitting light.

18. The organic EL display device of claim 17, wherein the dopant is selected from a group consisting of
4-(dicyanomethylene)-2-*t*-butyl-6-(1,1,7,7-tetramethyljulolidyl-9-enyl)-4H-pyran, Coumarin 6, Rubrene, DCM, DCJTb, Perylene, and Quinacridone.